(12) EUROPEAN PATENT APPLICATION

(71) Applicant: **ARRAY TECHNOLOGY CORPORATION**
4775 Walnut Street Suite B
Boulder Colorado 80301(US)

(72) Inventor: **Stallmo, David Charles**
59 Beaver Way
Boulder Colorado 80304(US)
Inventor: **Brant, William Alexander**
4784 Dorchester Circle
Boulder Colorado 80301(US)
Inventor: **Gordon, David**
1630 30th Street A262
Boulder Colorado 80301(US)

(74) Representative: **Allman, Peter John et al**
MARKS & CLERK Suite 301 Sunlight House
Quay Street
Manchester M3 3JY(GB)

(54) On-line restoration of redundancy information in a redundant array system.

(57) A method for on-line restoration of redundancy information in a redundant array storage system. The invention provides alternative methods of restoring valid data to a storage unit after a Write failure caused by a temporary storage unit fault. In the first preferred method, a valid redundancy block is generated for the corresponding data blocks on all storage units. Resubmitting the interrupted Write operation causes the old (and potentially corrupted) data block to be "subtracted" out of the re-computed redundancy block. The uncorrupted new data block is written over the old data block, and is "added" into the re-computed redundancy block to create a new, corrected redundancy block. The new, corrected redundancy block is written to the appropriate storage unit. In the second preferred method, a new redundancy block is generated from all valid data blocks and the new data block. The new redundancy block and the new data block are then written to the appropriate storage units. In both cases, the entrie method is done on-line, with insignificant interuption of normal operation of the redundant array system, and without requiring added processing during normal operation.

EP 0 492 808 A3

EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 369 707 (ARRAY TECHNOLOGY CORPORATION) * column 29, line 54 - column 33, line 46 *	1,7,17	G06F11/14 G06F11/10
A	THE 17TH INTERNATIONAL SYMPOSIUM ON FAULT-TOLERANT COMPUTING; DIGEST OF PAPERS 6 July 1987, PITTSBURGH, PENNSYLVANIA, USA pages 176 - 181 Y. DISHON ET AL. 'A Highly Available Storage System Using the Checksum Method' * page 178, left column, line 42 - page 179, left column, line 12 *	1	
A	IBM TECHNICAL DISCLOSURE BULLETIN vol. 33, no. 6B, November 1990, ARMONK, NY, USA page 254 , XP000108861 'USE OF NON-VOLATILE SEMICONDUCTOR STORAGE FOR DISK ARRAY PARITY' * the whole document *	6	
A	EP-A-0 371 243 (INTERNATIONAL BUSINESS MACHINES CORPORATION)	1	
A	EP-A-0 297 507 (INTERNATIONAL BUSINESS CORPORATION)	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

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G11B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	06 NOVEMBER 1992	ABSALOM